

MARICOCCUS BRUCEI, AN UNUSUAL NEW GENUS AND SPECIES
OF SPHAEROMATIDAE FROM SOUTHERN AUSTRALIA
(CRUSTACEA: ISOPODA)

BY GARY C. B. POORE

Department of Crustacea, Museum of Victoria, 71 Victoria Crescent, Abbotsford,
Victoria 3069, Australia

Abstract

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A new monotypic genus is diagnosed, the first among Sphaeromatidae with complete fusion of pleonite 1 to the remaining pleonites. It belongs to a group of dynamenine genera in which the first pleopods are operculiform, the first pleonal sternite is long, and the mandibular incisor is unicuspidate. The new genus is exceptionally flattened, more than in species of *Juletta* Bruce, 1993 and *Margueritta* Bruce, 1993 which it resembles. It differs from these two in the possession of falcate pereopodal dactyli.

Introduction

The sphaeromatid subfamily Dynameninae Bowman is characterised principally by the presence of thickened folds on both rami of pleopods 4 and 5. With about 35 genera it is the largest subfamily of the Sphaeromatidae. Six of its genera are associated in what seems a monophyletic clade united by the possession of operculate or semioperculate pleopods 1, pleopod 2 with endopod very much longer than exopod, and a complete sternite on pleonite 1. The six are: *Ischyromene* Racovitza (Harrison and Holdich, 1982); *Amphoroidea* Milne Edwards (Baker, 1908); *Amphoroidella* Baker (Harrison, 1984); *Cymodocella* Pfeffer (Brandt and Wägele, 1989); *Juletta* Bruce; and *Margueritta* Bruce (Bruce, 1993). Other undescribed genera are known (N. L. Bruce, pers. comm.) and other species may be assigned to the group when their pleopods have been described. The monophyly of the clade is as yet untested.

A new similar genus and species from southern Australia, *Maricoccus brucei*, is here described.

Material is lodged in the Australian Museum, Sydney (AM), Queensland Museum, Brisbane (QM), Museum of Victoria, Melbourne (NMV), and South Australian Museum, Adelaide (SAM).

Maricoccus gen. nov.

Type species. Maricoccus brucei sp. nov.

Diagnosis. Body strongly flattened, smooth; pereonites 6 and 7 without dorsal processes. Head strongly flattened, anteriorly produced, with

ventral rostrum between antennae; eyes small, lateral, visible in both dorsal and ventral views. Coxae 2–7 fused to tergite, laterally expanded, interconnected by coxal keys, visible ventrally; coxa 7 reaching to lateral margin of body. Pleonite 1 completely fused to remaining pleonites, indicated mid-laterally by short slit; all pleonites fused to pleotelson, 1 suture probably between pleonites 5 and 6; pleotelsonic apex entire, without foramen or exit channel. Pleonite 1 sternite long, with plate between pleopods 1.

Epistome (fused frontal lamina and clypeus) broad, not extending between antennae 1. Antenna 1 peduncle not flattened, article 2 produced distally. Mandibular incisor unicuspidate; lacinia mobilis absent; spine row of prominent slender truncate spines; molar process blunt, not ornamented. Maxilla 2 outer lobe short, with 1 seta. Maxillipedal endite with clubbed setae mesially; palp articles 2–5 without lateral setae, with mesial setae; articles 3 and 4 weakly lobed.

Pereopod 1 shorter than 2–7, each with falcate dactylus about as long as propodus. Penes paired on posterior margin of pereonite 7, not reaching pleopods 1.

Pleopods 1 and 2 together operculiform; pleopod 1 short, exopod weakly indurate; pleopod 2 endopod weakly indurate, much longer than exopod, concealing remaining pleopods. Pleopod 3 exopod without transverse suture. Pleopods 4 and 5 with thickened ridges on both rami; exopods without suture; pleopod 5 exopod with 2 scaled lobes. Pleopods 1–3 only with plumose marginal setae. Uropods lamellar, meeting in midline posteriorly, rami not reduced.

Female. Mouthparts not metamorphosed. Oostegites present on pereopods 2–4, overlapping in midline. Body and appendages as in male.

Etymology. From the Latin *mare* (the sea) and *Coccus* (a Linnean genus of scale insect) alluding to the origin and shape of the type species (masculine).

Remarks. *Maricoccus* is the first-recorded sphaeromatid with complete fusion of pleonite 1 to the remaining pleonites and telson. The usual sphaeromatid condition is a three-part pleon: very short free pleonite 1 whose epimera do not reach the lateral margin of the body; fused pleonites 2–5 with epimera variously indicated laterally; and pleotelson (pleonite 6 plus telson). In *Maricoccus* there is no indication of pleonite 1 dorsally or laterally and the remaining pleotelsonic unit bears only one lateral suture, possibly indicating the suture between pleonites 5 and 6.

The features shared by *Maricoccus* and the dynamenine *Ischyromene*-group of genera are exposed and thickened proximomesial triangle of pleopod 1 endopod, endopod of pleopod 2 much longer than exopod, and the complete sternite of pleonite 1 with a medial posterior process. Individually, these characters may be seen in some other sphaeromatid genera but investigation of their distribution is beyond the scope of this contribution.

Pleopod 1 is very short in *Maricoccus* and is operculiform only in combination with pleopod 2, a situation very different from other genera of the group. Within the *Ischyromene*-group, *Maricoccus* is most similar to two genera also confined to southern Australia, *Juletta* and *Margueritta*. Both are flattened (weakly so in *Margueritta*), smooth, possess a ventral rostrum, and have a simple mandibular incisor. They also lack a complete suture between pleonites 5 and 6, a condition found rarely in Sphaeromatidae. The new genus differs from these two in being exceptionally flattened, in possession of falcate pereopodal dactyli, and simplicity of the molar process.

No adult male characters are used in this diagnosis since only one apparently mature male is available in the type species. This specimen, with well developed penes, lacks appendices mas-

culinae. *Dynamene* Leach is the only sphaeromatid genus which has been shown convincingly to lack appendices masculinae (Holdich and Harrison, 1980) and the true generic condition is uncertain.

Maricoccus brucei sp. nov.

Figures 1–4

Material examined. Holotype. Vic., NW side of Henty Reef, Mounts Bay, Apollo Bay (38°47.0'S, 143°40.5'E), 3 May 1988, 18 m, red algae on boulder, R. T. Springthorpe and P. B. Berents, AMP P41376 (♂, 4.6 mm, with 1 slide).

Paratypes. Victoria. Type collection, AM P41840 (non-ovigerous ♀, 3.3 mm; 6 manca, 1.5–2.7 mm). Type locality but on bryozoan *?Orthoscuticella*, AM P41373 (manca, 2.3 mm). Laurence Rocks, Portland (38°24.0'S, 141°40.1'E), 30 Apr 1988, 23 m, on red algae, R. T. Springthorpe and P. B. Berents, AM P41345 (ovigerous ♀, 4.6 mm; 2 manca, 1.6, 2.1 mm). 15 km S of Port Fairy (38°32.0'S, 142°28.6'E), 20 Nov 1981, 52 m, medium sand, R. Wilson (stn BSS-187), NMV J13266 (non-ovigerous ♀, 3.7 mm).

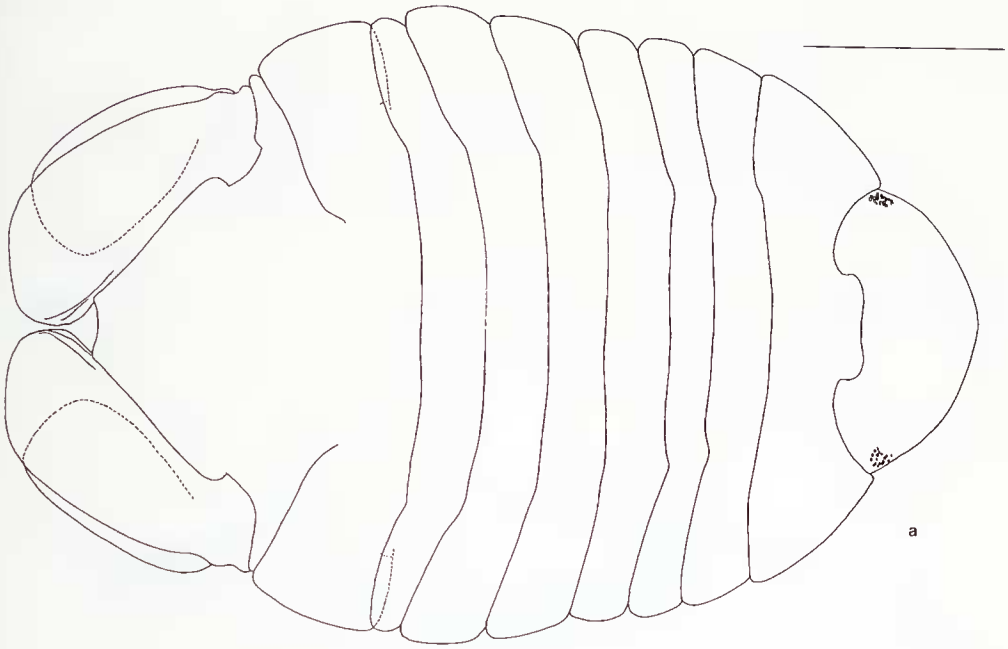
Tasmania. 14 km SW of Currie, King I. (40°00.7'S, 143°49.9'E), 46 m, fine sand, sled, R. Wilson (stn BSS-197), NMV J26276 (manca, 2.3 mm).

South Australia. E side of Wright I., Encounter Bay (35°35'S, 138°37'E), 10 May 1988, on bryozoan, 12 m, N. Holmes (QM W18928, non-ovigerous ♀, 3.4 mm). 0.8 km S of Henley Beach Jetty, Adelaide, 1.4 km offshore (34°45'S, 138°31'E), 1 Jan 1985, from *Amphibolis antarctica* community, 6–7 m, S. M. Clarke, SAM C5509 (juvenile, 4.4 mm, with 2 slides), SAM C5510 (2 juveniles, 3.1 mm), NMV J14028 (juvenile, 4.5 mm, with 1 slide). Beachport, Snapper Point (37°29.3'S, 139°59.6'E), 6 m, brown algae on limestone reef, G. C. B. Poore and R. S. Wilson, 14 May 1990, SCUBA (stn CRUST 90), NMV J20426 (juvenile, 2.6 mm).

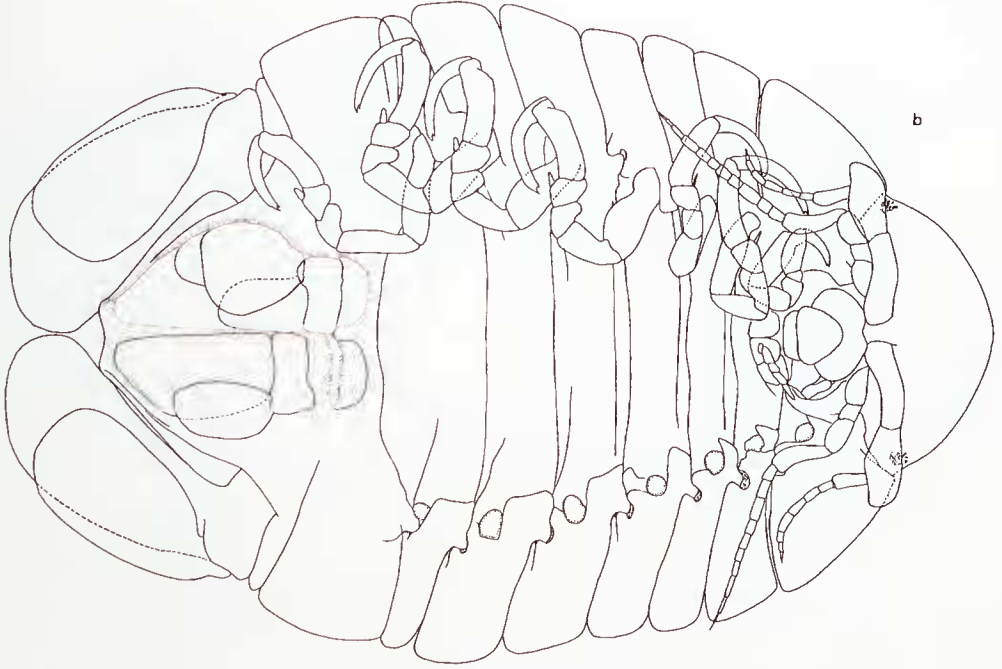
Description. Male. Body 1.5 times as long (head to uropod) as wide, flat, 6 times as long as high, smooth. Head less than half width of body, anteriorly produced as a semi-circular plane, posteriorly weakly inset into pereonite 1. Pereonite 1 longer and narrower than rest. Coxae extending about one-quarter of body width beyond bases of pereopods; adjacent coxal plates interconnected by ventral coxal keys. Pleonite 1 indicated only by short slit lateral to ventral key near base of pereopod 7. Pleotelson apex excavate, upturned, together with uropod endopods forming exit hole.

Eyes lateral, small. Epistome wider than long, curving around labrum; labrum weakly divided

Figure 1. *Maricoccus brucei*, juvenile, 4.4 mm, SAM C0000. a, dorsal view. b, ventral view (left pereopods and pleopod 1 removed). c, lateral view. Scale line = 1 mm.



a



b



c

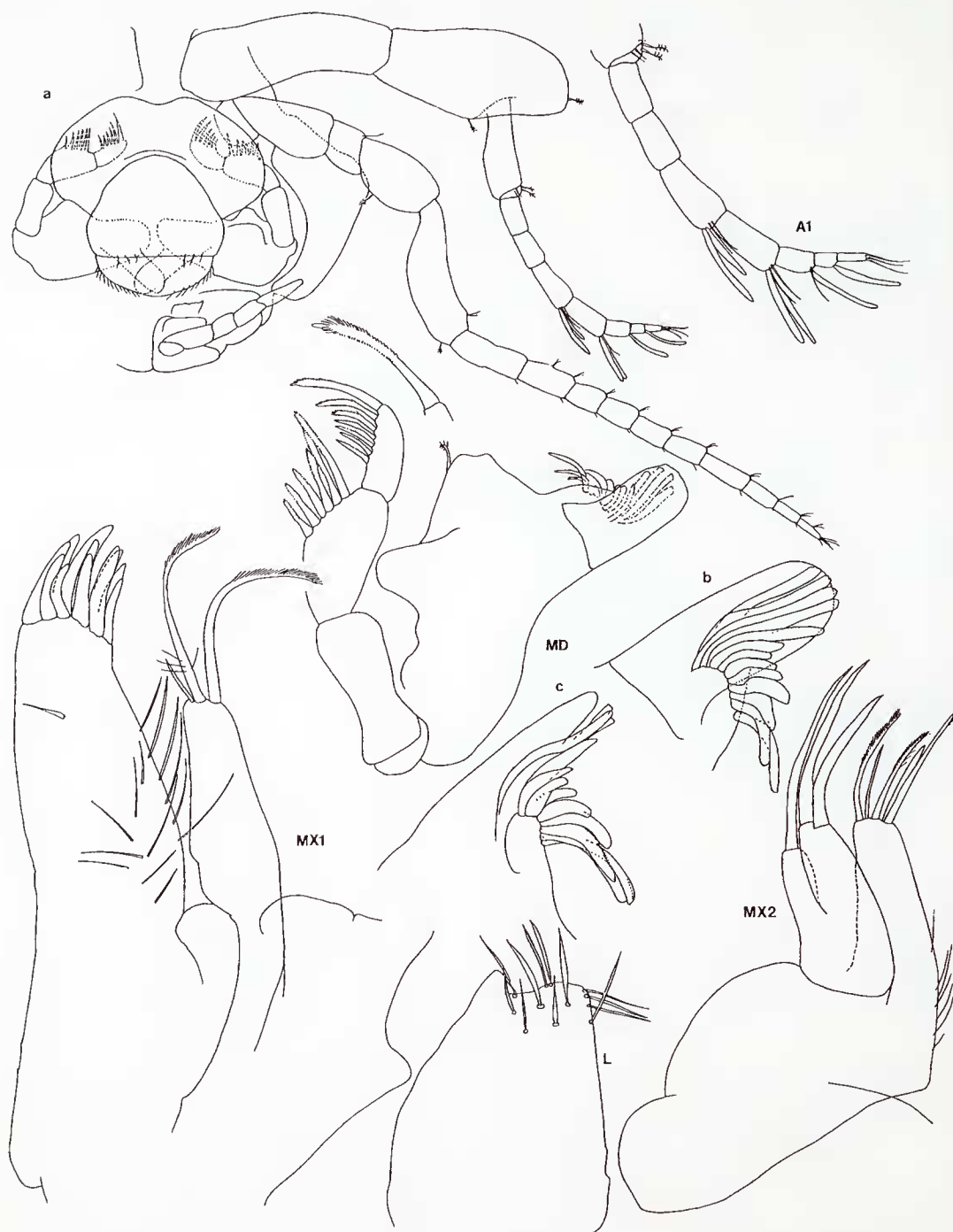


Figure 2. *Maricoccus brucei*, juvenile, 4.4 mm, SAM C5509. a, mouthparts and antennae in situ. A1, antenna 1. MD, mandible (a, right ventral; b, right incisor and spine row, anterior; c, left dorsal). MX1, MX2, maxillae 1, 2. L, left labium.

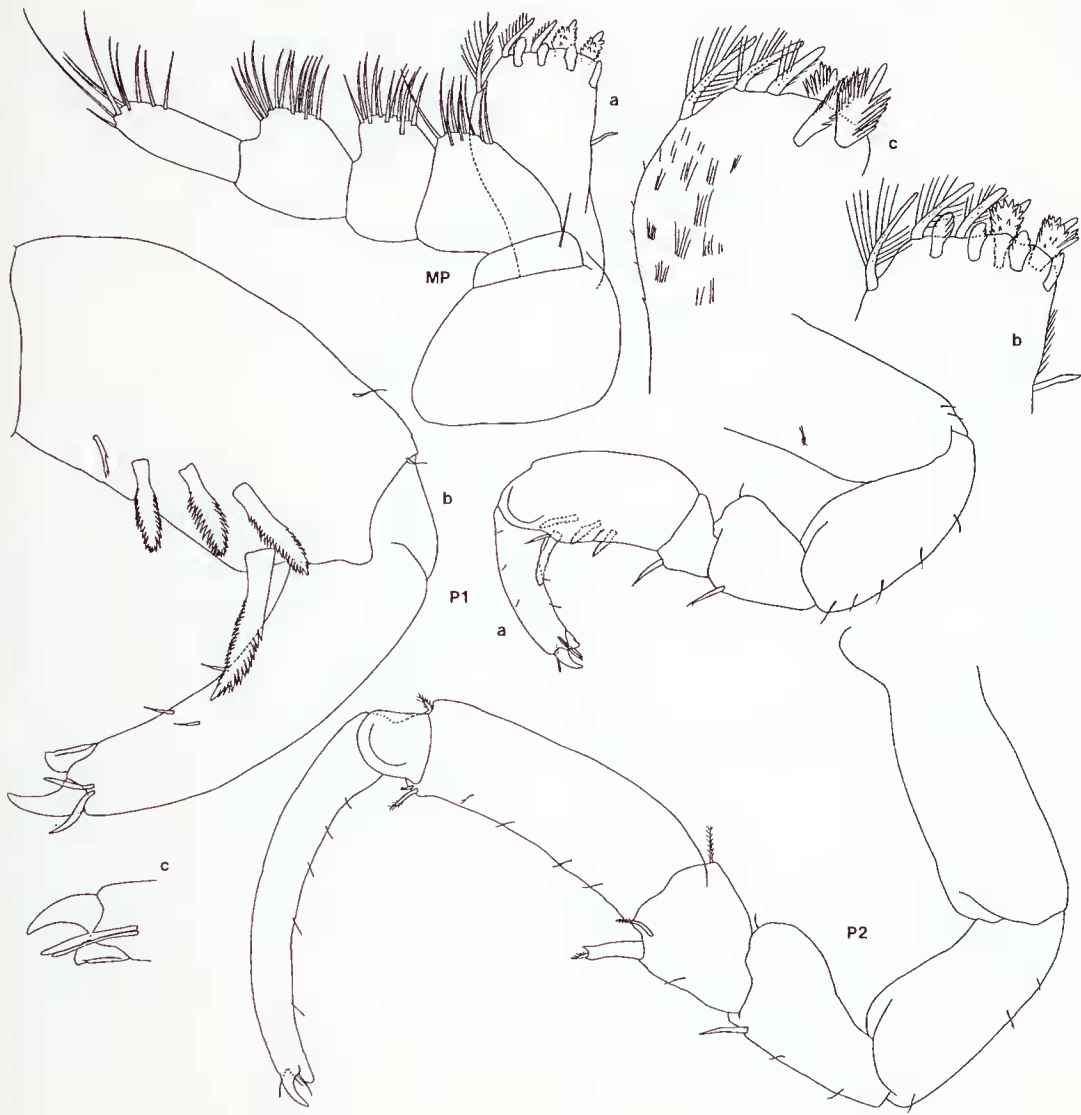


Figure 3. *Maricoccus brucei*, juvenile, 4.4 mm, SAM C5509. MP, maxilliped (a, right, posterior; b, right endite, posterior; c, left endite, anterior). P1, left pereopod 1 (a, lateral; b, propodus and dactylus, mesial; c, unguis, lateral). P2, left pereopod 2, lateral.

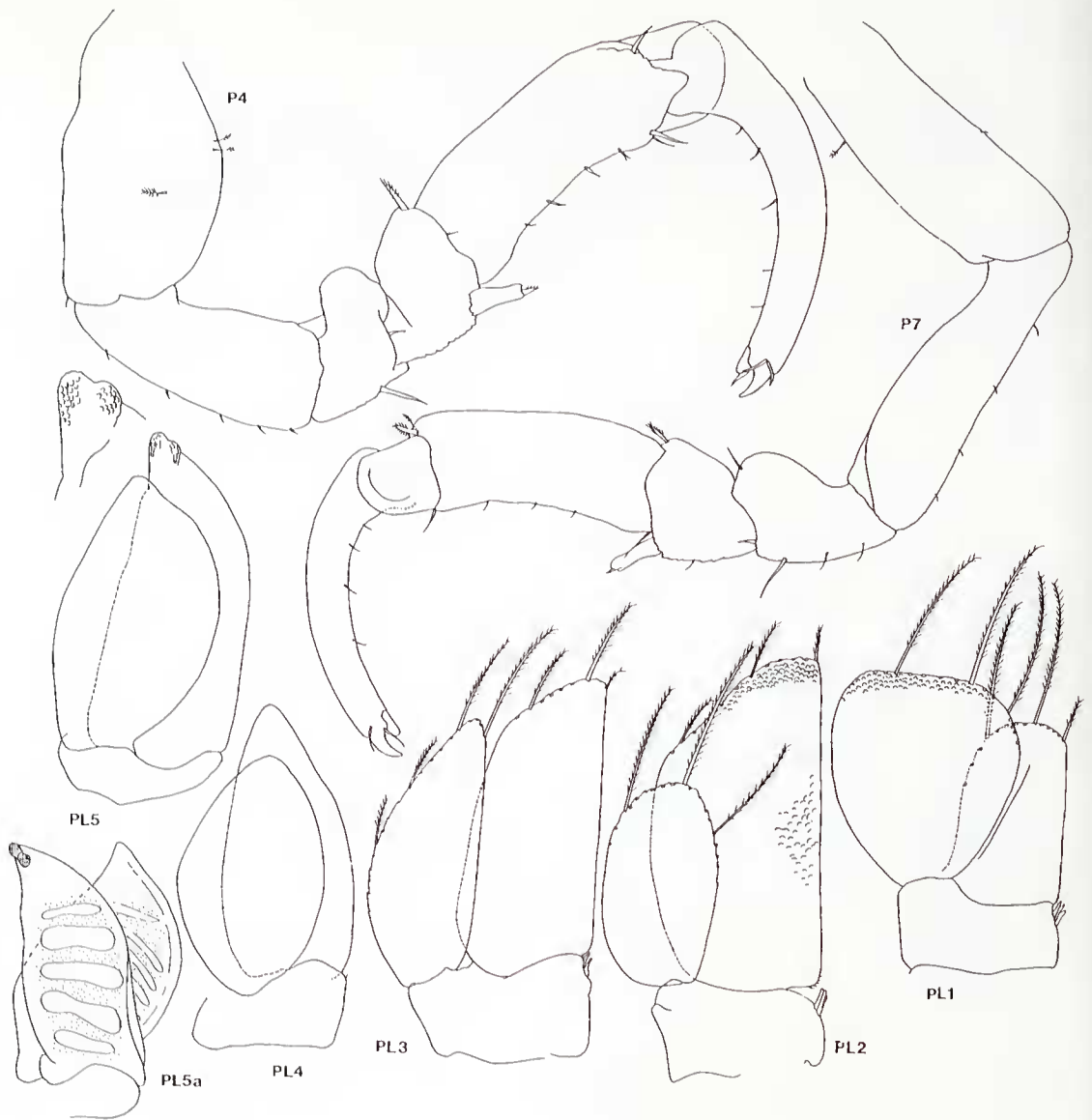


Figure 4. *Maricoccus brucei*, juvenile, 4.4 mm, SAM C5509. P4, left pereopod 4, mesial. P7, left pereopod 7, lateral. PL1–PL3, left pleopods 1–3.

Juvenile, 4.5 mm, NMV J14028. PL4, PL5, left pleopods 4, 5 (all pleopods to same relative scale, typical setae only shown).

Male, 4.6 mm, AM P41376. PL5a, pleopod 5.

into proximal and distal parts, completely covering mandibular incisors.

Antenna 1 bases separated by ventral rostrum; peduncle article 2 0.8 length of article 1, anterodistally produced; article 3 articulating subterminally on 2, about half as long as article 2; flagellum shorter than peduncle, of 1 short and 7 longer articles bearing 0, 0, 2, 2, 1, 1, 0 aesthetascs. Antenna peduncle geniculate between articles 4 and 5; article 1 short; article 2 4 times as long as first; article 3 half as long as second; articles 4 and 5 progressively increasing in length; flagellum of 10 articles bearing minute setae.

Mandibles symmetrical; incisors chitinised, brown, oblique–posteriorly directed and overlapping, distally rounded; spine row of 12–13 flattened bent spines of which the longest lie against the incisor; molar process blunt, with basal seta; palp basal article held in over labrum; articles 1 and 2 subequal; 2 with 6 pectinate setae on distal half; 3 with 7 pectinate setae. Maxilla 1 inner lobe with 2 long setulate setae and 1 simple short seta; outer lobe with 11 short strong setae. Maxilla 2 laterally expanded; inner lobe with 5 setae of various forms; middle lobe with 2 setae; outer lobe shorter than middle, with 1 seta. Maxilliped without defined coxa or epipod; endite truncate, with 2 complex clubbed setae on anterior face near mesial margin; with 3 strong plumose setae on distolateral margin; 4 narrow fan-shaped spines on posterior face; and 1 simple coupling hook mesially. Maxillipedal palp 2.5 times as long as endite, article 1 short; articles 2–4 mesially lobed and setose; article 5 longer than 4, distally setose.

Pereopod 1 half length of other pereopods; merus and carpus with posterodistal setae; propodus with 4 mesial pectinate setae, dactylus as long as propodus, with short unguis and blunt accessory unguis. Pereopods 2–7 essentially similar; third slightly shorter than second; fourth to sixth of similar size; seventh slightly more elongate. Pereopod 4 merus with fine posterodistal spine; carpus with stout flagellate posterodistal spine and plumose anterodistal seta; propodus slightly curved, dactylar lateral articulating plate indicated by fine transverse suture, with few short posterior and anterodistal setae; unguis minute, secondary unguis blunt.

Paired penes on the posterior margin of pereonite 7, longer than wide.

Pleopod 1 overlapping only half pleopod 2, endopod shorter than exopod, with 14 setae on distolateral margin; exopod widest distally,

almost as broad as long, with 18 distal setae, with thickened rugose distal margin. Pleopod 2 endopod 1.5 times as long as exopod, with 13 disolateral setae on oblique margin, thickened and rugose on distal and midmesial margin; exopod ovate, with 19 marginal setae on distal half. Pleopod 3 rami narrow, acute; endopod longer, with 8 setae; exopod curved with 30 setae. Pleopod 4 endopod longer and more acute than exopod, both rami with c. 7 transverse thickened ridges. Pleopod 5 endopod longer than exopod, with 2 apical scaled lobes, both rami with c. 5 transverse-oblique thickened ridges. Uropod attached near lateral suture of pleotelson; rami meeting posterior to apex of telson, length 2.5 times greatest width; exopod shorter, ventral, apex rounded–truncate.

Female. No ova- or embryo-bearing females observed.

Colour. Deep violet when alive (V. N. Sergeev pers. comm.); dull white–yellow in alcohol, semi-transparent.

Size. Up to 4.6 mm, manca ranging from 1.5 to 2.7 mm.

Distribution. Shallow coastal waters of South Australia, Victoria and Tasmania at depths between 12 and 52 m, from red algae, bryozoans and sea grasses.

Etymology. For Niel Bruce in recognition of his contribution to the taxonomy of Australian isopods.

Remarks. Most of the specimens, including that illustrated, are small and lack transverse ridges on pleopods 4 and 5. They are, however, quite clear on the largest specimen, a male (fig. 4: PL5a). This specimen has small paired penes on the posterior margin of pereonite 7 but has no appendices masculinae. It is uncertain whether or not this is a fully adult specimen.

Acknowledgements

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